



# Educational Topic

## Electronics Engineer

### Related Job Titles:

Electrical engineer, computer engineer, computer scientist

### Job Description:

**Electronics engineers** design, develop, test and lead the production of electrical and electronic equipment including scientific instruments, motors, wiring in buildings, aircraft, radar, computers, robots and video equipment. Most **engineers** work in office buildings or laboratories. Some work outdoors at construction sites. Some must travel to different work sites.

### Interests / Abilities:

- Are you good at math?
- Is your work detailed?
- Do you like to solve problems?
- Are you interested in how things work?
- Do you like working with computers?
- Do you like to take things apart and put them back together?

### Education / Training Needed:

The minimum education required for this position is a **bachelor's degree** in electrical or **electronics engineering** from an accredited **college** or **university**. To do research, a **Ph.D.** is highly desired for this position.

### Suggested School Subjects / Courses:

- Mathematics (**algebra**, **geometry**, **trigonometry**, **calculus**)
- Science (**physics**, **biology**, **chemistry**)
- Computers
- **Engineering** (**thermodynamics**, **fluid dynamics**, **mechanical**, **electronics**)

### Areas of expertise:

- *Sensors and transducers:* research and develop sensing devices such as lasers that are needed in **aerospace** research.
- *Electronic instrumentation:* research and develop equipment that can detect, record and measure data for **aerospace** research.
- *Guidance and navigation systems:* research and develop systems used to guide and **navigate aerospace** vehicles and spacecraft.
- *Electromagnetic systems:* research and develop instruments, such as antenna systems, that measure electromagnetics.
- *Tracking and telemetry systems:* research and develop systems and devices that track the flight of **aerospace** vehicles or that transmit and receive data and commands between space vehicles and the ground.
- *Computer design:* design and develop computers or robots.

## Additional Resources:

- **Careers in Aviation/Aerodynamics**  
<http://wings.ucdavis.edu/Careers/index.html>
- Order NASA career videos such as "Engineers: Turning Ideas into Reality," "Careers: Aerospace Engineer" or "Reaching for the Stars" from NASA CORE.  
<http://core.nasa.gov>
- **Robotics Education**  
<http://robotics.arc.nasa.gov>
- **Junior Engineering Technical Society**  
<http://www.asee.org/jets>
- **Accreditation Board for Engineering and Technology, Inc.**  
<http://www.abet.org>
- **Institute of Electrical and Electronics Engineers**  
<http://www.ieee.org>
- **Student Educational Employment Programs**  
[http://nasajobs.nasa.gov/stud\\_opps/employment/index.htm](http://nasajobs.nasa.gov/stud_opps/employment/index.htm)
- **NASA Jobs**  
<http://nasajobs.nasa.gov/>
- **NASA Summer High School Apprenticeship Research Program (SHARP)**  
<http://www.mtsibase.com/sharp/>

## What can I do right now?

- Participate in Bot-Ball or Robotics First competitions  
(see [Robotics Education](http://robotics.arc.nasa.gov/) <http://robotics.arc.nasa.gov/>)
- Take as many math and science classes as you can.
- Participate in National Engineers Week.
- Call the American Association of Science and Technology Centers for information on science museums in your area that you might visit (202) 783-7200.
- Order activity books, poster sets and **engineering** kits by writing to the Society of Manufacturing Engineers, One SME Drive, P.O. Box 930, Dearborn, MI 48121-0930.
- Buy computers or electronics equipment from your local thriftstore, take it apart and see how it works.

- .....
- Please take a moment to evaluate this product at:
  - [http://ehb2.gsfc.nasa.gov/edcats/educational\\_topic](http://ehb2.gsfc.nasa.gov/edcats/educational_topic)
  - Your evaluation and suggestions are vital to continually improving NASA educational materials.
  - Thank you.
- .....



<http://quest.nasa.gov/people/index.html>

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